EIZO's Guide to Enjoyment of Digital Photography

I see.
As the use of digital cameras spreads, there are many more ways to enjoy digital photos!

Print them out at home and make a photo book

Post them on a photo sharing site or on your blog

View them in a digital photo frame or on a TV

The colors of photos you took so much trouble to retouch will not be viewed by others as you intended.

You won't be able to print photos in the colors you want, and have to try again and again, thereby wasting time.

But if you don’t use a monitor suited for displaying digital photos...

It's actually important.

Which monitor you use to display digital photos

To enjoy digital photography more...

It’s important to use a monitor that is suited for displaying digital photographs.

- Achieve the colors you want in photos
- Finely retouch photos in the correct colors
- Make the colors displayed on the monitor match those in the printed photo
When printing digital photos at home...

If you can print photos that match the image you see, digital photography will be more enjoyable!

Print without doing multiple proofs  
Retouch with confidence

Color matching between on-screen photos and inkjet printouts reduces wasteful reprinting costs, saves the time and labor that repeated retouching takes, and leads to higher quality printed images.
What does a monitor need to display correct digital photo images?

1. **The correct color gamut**

   There are two types of digital cameras in terms of color space: those with which you shoot using the sRGB color space and those with which you can choose to shoot using the sRGB color space or the even broader Adobe® RGB color space. With Adobe RGB, you can shoot emerald-green oceans and brilliant yellow flowers, but if you are using a monitor with a color gamut not suited to Adobe RGB, the images will not be displayed correctly. On the other hand, while the reproducible color space for sRGB is narrower, color management is easier because it is meant for general use.

   It is necessary to select a monitor depending on your color management method – Adobe RGB or sRGB.

2. **Smooth gradations**

   Gradation is used in photo data to express color shading and a sense of depth. A monitor with color infusion or color omission issues is unable to correctly display important elements of photographic data.

   To correctly display photographic data, it is necessary to use a monitor that is capable of clearly displaying gradations in monochromatic images, including low gradation areas, with no color infusions or omissions.

3. **No unevenness in brightness or color on screen**

   There are many recorded pixels in photo data, and because they do not all fit in window displays, most retouching takes place on a full screen. Monitors with poor accuracy to start with or monitors whose color display has changed after long periods of use may have dark patches or color infusion in sections, leading to nonuniformity.

   For displaying digital photos, the most suitable monitor is one that has been adjusted in advance to correct uniformity. You are even better off with a monitor with circuitry that takes into account changes in the monitor’s displayed brightness, etc. due to continued use, and adjusts for them.

4. **Easy-to-adjust display**

   One requirement is a display that can be finely adjusted for brightness and color tone with minimum effort. Most monitors are adjusted using buttons on the front of the monitor or software produced by other companies. However, because there are limits to the adjustments that can be performed, and it takes time and expertise to perform these, these monitors are not the most suitable for digital photo displays.

   The ideal is to use software and sensors dedicated to the monitor you are using, in order to easily adjust color display correctly in a shorter time depending on the way you like to enjoy digital photos. In addition, you will find it easier to maintain the correct color display if you select timesaving items to make regular readjustments.
EIZO’s ColorEdge color management monitors fulfill the four conditions listed on pages 6-7. We have an extensive line-up for enjoying your digital photos so choose one that’s best for you.

**Choosing the right monitor**

*When using a compact digital camera*

**Color manage in sRGB**
- Shoot in sRGB
- Shoot in RAW and develop in sRGB

*When using a mirrorless interchangeable lens camera or digital SLR camera*

**Color manage in Adobe® RGB**
- Shoot in Adobe® RGB
- Shoot in RAW and develop in Adobe® RGB

For printing at A3 size or larger...

**ColorEdge® CX271**
ColorNavigator 6 included, calibration device sold separately.
Enjoy your digital photos all the more with this large 27-inch screen.

If you want to further master digital photos...

**ColorEdge® CG Series**
This professional series, with its built-in calibration sensor, is a favorite among photography pros.
Color matching the monitor and photo prints

To color match the monitor and photo prints, you not only must choose a monitor that correctly displays digital photos and offers optimal adjustments, but must also select the correct settings with your retouching software and printer. This guide introduces the necessary adjustments and settings when making prints to achieve color matching.

The steps to achieving color matching

1. Take photos
   - Do a test print with the correct settings.
   - See pages 16-21

2. Adjust the monitor
   - Adjust the settings beforehand so that you can confirm the correct color.
   - See pages 12-14

3. Retouch software settings
   - Import the photo data to your computer, view it with the proper settings, and choose the photos you will print.
   - See page 15

4. Printer settings
   - Do a test print with the correct settings.

5. Environment preparation
   - View the test print in the appropriate lighting environment.
   - See page 22

6. Fine tune the monitor
   - Compare the test print and the monitor and match them even closer.
   - See page 23

7. Matching completed!
   - Retouch and print knowing you can trust your screen. Then sit back and enjoy your work!
Color Matching with ColorNavigator 6

We introduce ColorNavigator 6 color management software for calibrating ColorEdge monitors for even greater enjoyment of digital photos.

1. Select the adjustment target
   Double-click on the butterfly icon.

2. Preparing the sensor
   For the CG series
   For Measuring Instrument, select Internal calibration sensor and for Standard Measuring Instrument, select None, and click on the Next button.

   Click on the Next button.

   The built-in calibration sensor adjusts the monitor.

   For the CX and CS series
   Attach the external calibration sensor to the monitor.

   For Measuring Instrument, select the sensor name, click on the button, and follow the instructions on the screen.

   When the sensor is placed on the screen, click on the button.

   - Tilting the monitor upward fixes the sensor in place and makes color measurements easier.
   - After turning on the monitor, it is necessary to wait 60 minutes while the adjustment results from the external calibration sensor are saved to the built-in correction sensor.

   The external calibration sensor adjusts the monitor.

   The built-in correction sensor* saves the adjustment values from that sensor.

   *Not available with the ColorEdge CS240.

3. Save the adjustment results
   After confirming on the adjustment results screen that there are no major gaps between “Target” and “Result” values, click on the Finish button.

   The display returns to the initial screen, and the adjustment target name is marked with a blue circle.

   Your screen has been optimally adjusted for printing.

   To maintain these settings, see “Regular calibration of the monitor” on the next page.

   To confirm your matching, open your photo in your retouching software and make a test print.

   See page 13 for details.

Why calibration is necessary

After calibrating with ColorNavigator 6, a “monitor profile” is generated and automatically configured to your computer’s OS. It’s very important to match colors (color management) when using retouching software, printers, and monitors. ColorNavigator makes it easy to do this to a high degree of accuracy.

What’s a monitor profile?

It’s a data file that conveys to the system how a monitor displays color.
Regular calibration of the monitor

The monitor’s display of color changes over time with use, so regular readjustments are important. ColorEdge is equipped with a built-in sensor that automatically performs regular adjustments, constantly maintaining the same conditions and allowing you to enjoy your digital photos with peace of mind.

Monitor that cannot perform regular display corrections

Correct color display  ▶  Change in display characteristics

Because the built-in sensor automatically adjusts the monitor at regular intervals to correct the display.

ColorEdge

The reason...

Correct color display  ▶  Maintains display characteristics

Because the built-in sensor automatically adjusts the monitor at regular intervals to correct the display.

With ColorNavigator 6...

Select “SelfCorrection” to set the intervals in usage time

Retouch software settings

In order to match monitor colors with printed ones, it is also important to appropriately select the color settings for the retouch software that is used to display photos. The following is an introduction to the recommended settings for color matching using three typical software packages.

Adobe® Photoshop Elements 11

The default settings are used here.

| From the Tool pull-down menu, select Preferences, and then the Color management tab. In Default settings of Work color space, select sRGB or Adobe® RGB, depending on your color management method. In Color matching settings, for display, select Use the OS settings. Click OK. |

Adobe® Photoshop CS6

The default settings are used here.

| From the Tool pull-down menu, select Preferences, and then the Color management tab. In Default settings of Work color space, select sRGB or Adobe® RGB, depending on your color management method. Under CMS settings for print and for display, select Monitor profile. Click on the Browse... button and select the profile of the created adjustment target. Click OK. |

Canon Digital Photo Professional

Canon Digital Photo Professional requires manual setup.

| For Windows  
From the Tool pull-down menu, select Preferences, and then the Color management tab. In Default settings of Work color space, select sRGB or Adobe® RGB, depending on your color management method. Under CMS settings for print and for display, select Monitor profile. Click on the Browse... button and select the profile of the created adjustment target. Click OK.  
| For Mac OS  
From the Tool pull-down menu, select Preferences, and then the Color management tab. In Default settings of Work color space, select sRGB or Adobe® RGB, depending on your color management method. Under CMS settings for print and for display, select Monitor profile. Click on the Browse... button and select the profile of the created adjustment target. Click OK. |
**Printer Settings**

**EIZO’s recommendations for digital photo perfection**

To match the color of your monitor and photo prints, it’s necessary to use a printer that accurately prints photo data. Here, we introduce our recommended EIZO monitors and printers and explain the appropriate printer settings for color matching.

### Canon

<table>
<thead>
<tr>
<th><strong>Color management in sRGB</strong></th>
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<tbody>
<tr>
<td>EIZO ColorEdge CS230</td>
</tr>
<tr>
<td>23” Hardware calibration monitor with sRGB color space.</td>
</tr>
<tr>
<td>Canon PIXMA MG7550</td>
</tr>
<tr>
<td>Premium 6-ink All-in-One with touch control, cloud and mobile printing.</td>
</tr>
</tbody>
</table>

**For color management in Adobe® RGB**

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<th>EIZO ColorEdge CS240/CX241</th>
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<tr>
<td>24.1” Hardware calibration monitors with 99% reproduction of Adobe RGB color space.</td>
</tr>
<tr>
<td>Canon PIXMA PRO-10</td>
</tr>
<tr>
<td>Gallery-quality A3+ photo printer with 10-ink system.</td>
</tr>
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See pages 18-19 for printer settings

### Epson

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<td>EPSON XP-950</td>
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<td>Multi-functional model that prints up to A3-sized paper.</td>
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<td>EPSON SC-P600</td>
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<tr>
<td>Professional A3+ printer with Epson UltraChrome HD ink technology for unsurpassed quality.</td>
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</table>

See pages 20-21 for printer settings
Canon Printer Settings

After correctly setting your retouching software, open the photo you want to color match. EIZO has prepared a print sample which you can use as a test print.

You can download it here: http://www.eizo.com/global/i/print_sample/

Optimal print settings for color matching

1. In Adobe® Photoshop Elements, go to File > Print.

2. In the print window, choose your printer under Select Printer and click More Options in the lower left.

3. In the More Options window, select Color Management. For Color Handling, select Photoshop Elements Manages Colors. Under Printer Profile, select the paper profile you will be using and for Rendering Intent, select Relative Colorimetric. Click the Printer Preferences button.

4. Select the Main tab in the printer properties window. Set the paper you will use under Media Type (ex. Photo Paper Plus Glossy II). For Color/Intensity select Manual and click the Set button.

5. On the Manual Color Adjustment screen, select the Matching tab. We will print using the Photoshop Elements Manages Colors option you selected in Step 2, so for Color Correction, select None. Click OK.

6. Click OK to return to the More Options screen and OK again to return to the Print screen.

7. When you return to the More Options menu, select OK.

8. When you return to the print screen, click Print.

Make sure your output paper is dry prior to printing.

For the printer settings of other retouching software, please visit: http://www.eizo.com/global/i/printer/
Epson Printer Settings

After correctly setting your retouching software, open the photo you want to color match. EIZO has prepared a print sample which you can use as a test print. You can download it here. [http://www.eizo.com/global/i/print_sample/](http://www.eizo.com/global/i/print_sample/)

### Optimal print settings for color matching

1. In Adobe Photoshop Elements, go to File > Print.

2. In the Print settings window, choose your printer under Select Printer. Click More Options in the lower left.

3. In the More Options window, select the Color Management tab. For Color Handling, select Photoshop Elements Manages Colors. Under Printer Profile, select the paper profile you will be using. For Rendering Intent, select Relative Colorimetric. Click OK.

4. When you return to the Print settings window, select Change Settings.

5. In the Change Settings window, select the paper you will use under Paper Type (ex. Premium Photo Paper Glossy). Click Advanced Settings.

6. In the Series Properties window select the Main tab. Under Mode select Off (No Color Adjustment). Click OK.

7. When you return to the Change Settings window, click OK.

8. When you return to the Print window, click Print. Make sure your output paper is dry prior to printing.

For the printer settings of other retouching software, please visit: [http://www.eizo.com/global/i/printer/](http://www.eizo.com/global/i/printer/)
Environment preparation

Even if color matching has been successfully performed between on-screen and printed photos under indoor lighting conditions in the evening, they may look different under outside light during the daytime. To correctly check the color, it is necessary to adjust the lighting conditions and to control environmental light so that images are always evaluated under the same conditions.

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ColorNavigator 6
Increase your matching precision

You’ve successfully made a test print. If your print matches your monitor then you can forgo the following steps. If something isn’t quite right with your matching because of environmental factors, you can manually fine tune a calibrated target for more precise color matching.

Select Adjust manually from among the Advanced buttons in the upper right side of the screen.

While comparing your print with your monitor screen, Adjust the Brightness. Move the pointer to the left or right until it approximates the appearance of your photo print.

Adjust the White Point. Move the pointer to the left or right until it approximates the appearance of the print. If the screen output seems blue, move the pointer away from the blue spectrum and toward the red end of the spectrum to remove excess blue.

When you have matched the colors, click the button. You will rarely need to use the Hue adjustment near the bottom of the menu.

Use the sensor to recalibrate.

The new adjustment targets are added to the target list.

This concludes our guide for color matching with ColorNavigator 6. Enjoy your photo prints!